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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,951	12/19/2001	Masatoshi Fukuda	011724	8648

38834 7590 09/16/2004

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EXAMINER

LANDAU, MATTHEW C

ART UNIT PAPER NUMBER

2815

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/020,951

Applicant(s)

FUKUDA ET AL.

Examiner

Matthew Landau

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 7-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-20 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 and 7-10 is/are allowed.
- 6) ☒ Claim(s) 11 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 2815

## DETAILED ACTION

### *Election/Restrictions*

Claims 13-20 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Election was made **without** traverse in the reply filed on August 27, 2002.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (JP 10-050949, hereinafter Kubo) in view of Nam et al. (US Pat. 6,380,579 B1, hereinafter Nam).

Figure 1 of Kubo discloses a capacitor formed above a semiconductor substrate 1 and including a straight cylindrical-shaped storage electrode 32(SN) having a hollow cylindrical projection, an edge of the hollow cylindrical projection being located on an uppermost part of the straight cylindrical-shaped storage electrode, a capacitor dielectric film 33 formed on the storage electrode, and a plate electrode 34 formed on the capacitor dielectric film, and the edge of the hollow cylindrical projection being rounded. Note that Applicant's statement of relevance found in the IDS filed May 1, 2002 states that "A part of the cylindrical shaped storage electrode SN is rounded". The difference between Kubo and the claimed invention is the storage electrode being formed of a metal film. Figure 4 of Ham discloses a capacitor with a storage electrode (33a,29a)

Art Unit: 2815

formed of platinum (column 6, lines 53-55). In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Kubo by forming the storage electrode from a metal film. The ordinary artisan would have been motivated to modify Kubo in the manner described above for the purpose using a conductive material that is resistant to oxidation.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nam in view of Ogawa.

Figure 4 of Nam discloses a capacitor formed above a semiconductor substrate 21 and including a straight cylindrical-shaped storage electrode 29a/33a having a hollow cylindrical projection (col. 6, lines 58-65), an edge of the hollow cylindrical projection being located on an uppermost part of the straight cylindrical-shaped storage electrode, a capacitor dielectric film 37 formed on the storage electrode, and a plate electrode 39 formed on the capacitor dielectric film, the straight cylindrical-shaped storage electrode being formed of a metal film (col. 6, lines 49-55). The difference between Nam and the claimed invention is the edge of the hollow cylindrical projection being rounded. Figures 21 and 22 of Ogawa disclose a straight cylindrical shaped storage electrode 41b with a rounded upper edge. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Nam by having the edge of the hollow cylindrical projection being rounded. The ordinary artisan would have been motivated to modify Nam in the manner described above for the purpose of suppressing the electric field concentration at the edge (see abstract of Ogawa).

*Response to Arguments*

Applicant's arguments with respect to claim 11 have been considered but are moot in view of the new ground(s) of rejection.

*Allowable Subject Matter*

Claims 1-4 and 7-10 are allowed.

Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

In regards to claims 1 and 9, the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including the edge of the hollow cylindrical projection being rounded and having a larger thickness than a thickness in a remaining portion of the hollow cylindrical projection.

The following is a statement of reasons for the indication of allowable subject matter:

In regards to claim 12, the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including the straight cylindrical-shaped storage electrode has a thickness gradually thickened toward the edge of the hollow cylindrical projection.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

Art Unit: 2815

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (571) 272-1731.

The examiner can normally be reached from 8:30 AM - 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

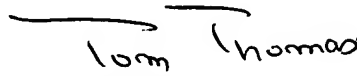
Art Unit: 2815

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Matthew C. Landau

Examiner

September 10, 2004

A handwritten signature in black ink that reads "Tom Thomas". The signature is written in a cursive style with a horizontal line above the first name.

TOM THOMAS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800